DOCUMENT RESUME

ED 305 757 EA 020 895

AUTHOR Hansen, Joe B.
TITLE A Case Study of the Use of Evaluative Data in Instructional Planning and Decision Making.
PUB DATE Mar 89
NOTE 47p.; Paper presented at the Annual Meeting of the American Educational Research Association (San Francisco, CA, March 27-31, 1989).
PUB TYPE Speeches/Conference Papers (150) -- Reports - Research/Technical (143)

EDRS PRICE MF01/PC02 Plus Postage.
DESCRIPTORS Case Studies; *Data Analysis; *Data Collection; Elementary Secondary Education; Information Dissemination; *Information Management; *Information Needs; *Information Utilization; Records Management; School Surveys
IDENTIFIERS *Portland School District OR

ABSTRACT

The purpose of this case study was to provide the Portland Public Schools' Research and Evaluation Department with information to guide the development of improved data collection, reporting, and information delivery systems in order to target these systems to more effectively meet the decision-making needs of teachers, principals, parents and administrators. There were three types of data collection activities: interviews, survey questionnaires, and observations both within classrooms and at meetings and other events. The case study examined uses of evaluative data (such as achievement tests, student evaluations, teacher evaluations) in instructional planning and decision making in a variety of circumstances. One elementary (K-5) and one middle school (6-8) were selected to participate. Both schools had been identified as high-data-use schools by previous similar studies. Survey questionnaires were completed by both principals, 22 teachers in the middle school, and 17 teachers in the elementary schools. Survey data were analyzed using SPSS crosstabs to determine which categories of information were used for instructional decision making with various demographic variables (that is, level of education, years of experience, and so forth); which Portland Achievement Levels Testing (PALT) reports were used and for what purposes; and how test scores were used. Findings demonstrated that data use varies within and between schools and between administrators and teachers. General patterns emerged, which yielded the following conclusions: first, principals were results-oriented and teachers were (user) process-oriented; second, teachers used data for classroom assessment of individual students; and finally, staff use depended on the principal's interest in the use of the data. (JAM)

****
* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *
****

ED305757

A Case Study of the Use of Evaluative Data in Instructional Planning and Decision Making

U.S. DEPARTMENT OF EDUCATION
Office of Educational Research and Improvement
EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)

This document has been reproduced as received from the person or organization originating it.

Minor changes have been made to improve reproduction quality.

Points of view or opinions stated in this document do not necessarily represent official OERI position or policy.

"PERMISSION TO REPRODUCE THIS MATERIAL HAS BEEN GRANTED BY

Joe B. Hansen

TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)."

Joe B. Hansen

Colorado Springs Public Schools

A presentation in the symposium:

Reaching Across: Case Studies in Evaluation Use to Improve Instruction

American Educational Research Association Conference

San Francisco, CA

March, 1989

EA 020 895

BEST COPY AVAILABLE

ACKNOWLEDGEMENT

I wish to express my appreciation and gratitude to Stephanie Mitchell of the Portland Public Schools for her support and assistance in conducting the studies on which this paper is based.

A Case Study of the Use of Evaluative Data in Instructional Planning and Decision Making

Joe B. Hansen
El Paso County School District 11
Colorado Springs, Colorado

INTRODUCTION AND BACKGROUND

The Portland Public Schools Research and Evaluation Department began a multi-year, district-wide study of the uses of evaluative data in the instructional decision making and planning process, in July 1986. The purpose of the study was to provide the department with information to guide the development of improved data collection, reporting and information delivery systems in order to target these systems to more effectively meet the decision making needs of teachers, principals, parents and administrators.

This effort was founded on the belief that the primary purpose of educational evaluation is to inform the instructional decision making and planning process. Assessment and evaluation should result in better informed decisions regarding the education of the children in our schools which should, in turn, result in improved achievement, more efficient use of school resources and greater satisfaction on the part of students, parents, teachers, principals and central office decision makers.

One of the basic assumptions of this project was that training teachers and principals in more effective and appropriate use of achievement data would result in higher student achievement. However, in order to ascertain the training needs of teachers and administrators in the use of such data, we felt it necessary to conduct a thorough investigation of how data of all types were being used in the instructional decision making and planning process in the Portland schools.

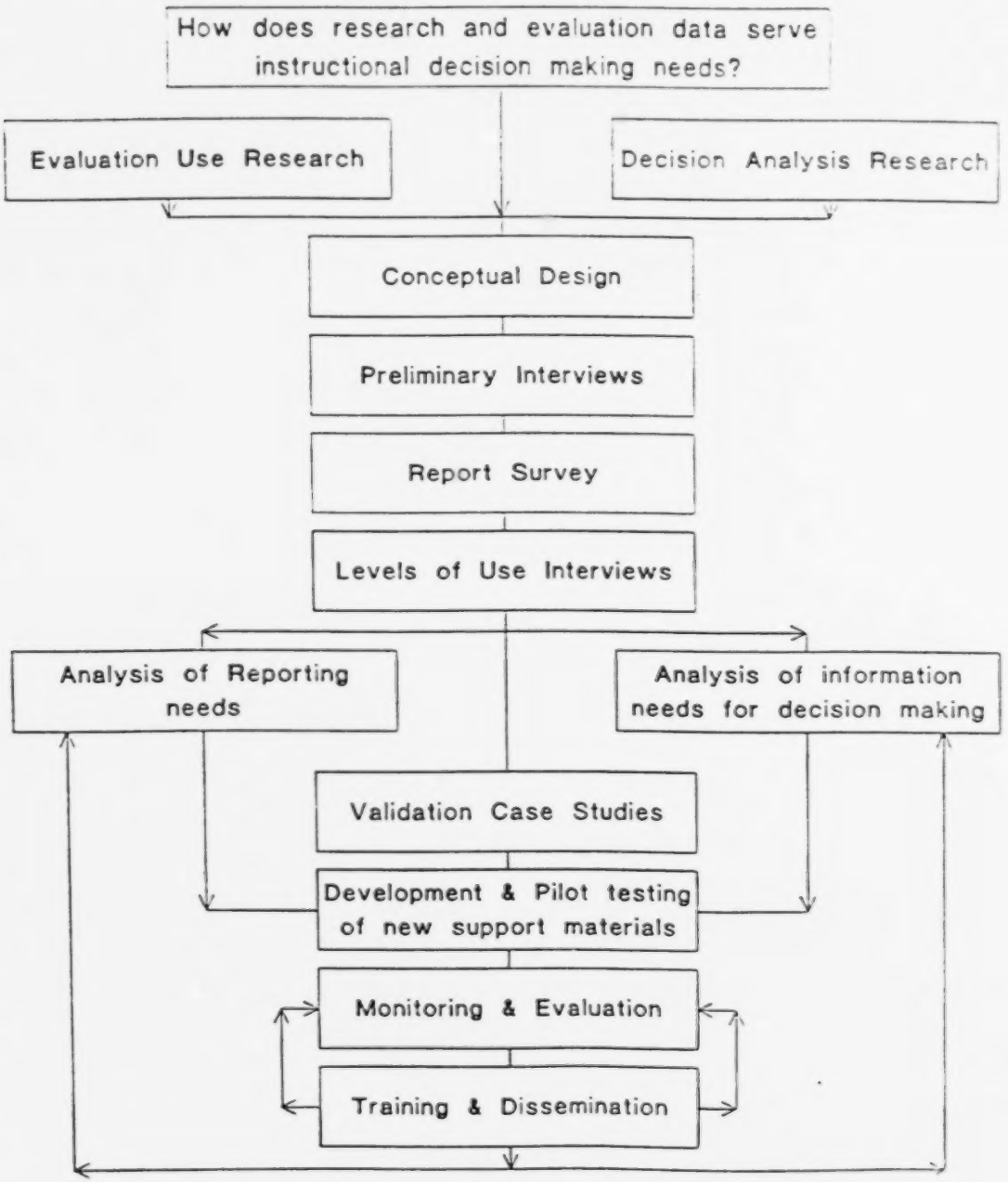
Conceptual Model

The study was based on a conceptual approach that combines decision making research with evaluation use research. Through a series of smaller studies it seeks information to guide development of support services and materials that will result in improved use of evaluative data. This conceptual model is illustrated in figure 1.

(insert figure 1 here)

Figure 1.

Conceptual Approach for Study of Use of Evaluative Data in Instructional Planning and Decision Making


How does research and evaluation data serve instructional decision making needs?
Evaluation Use Research
Decision Analysis Research
Conceptual Design
Preliminary Interviews
Report Survey
Levels of Use Interviews
Analysis of Reporting needs
Analysis of information needs for decision making
Validation Case Studies
Development & Pilot testing of new support materials
Monitoring & Evaluation
Training & Dissemination

Evaluative Data

For purposes of the study, evaluative data were defined as those data produced by: 1.) the Portland Achievement Levels Testing (PALT) program and other standardized tests, 2.) teacher developed tests, 3.) text embedded tests and worksheets, 4.) performance assessment, 5.) oral questioning strategies, 6.) group assessment methods, 8.) regular assignments, 9.) student peer ratings, and 10.) student self ratings.

Previous Studies

Study One

A Preliminary study conducted during the 1985-86 school year obtained data to guide the research and development process. The purpose of the preliminary study was to validate and test the functional utility of a hypothesized decision making structure, shown in figure 2.a, in which levels of decisions are associated with decision makers and their decision making time-frame. In this model decisions and the types of data associated with them can be related to the decision makers at each level within the school district organization.

In the preliminary study fourteen in-depth interviews were conducted with school principals, teachers, administrators and instructional specialists. These results confirmed the usefulness of the hypothetical framework and revealed varied uses for evaluative data in the instructional planning and decision making process. They also led to the development of a taxonomy of decision types based on the hypothesized decision structure. The taxonomy is shown in figure 2.b.

(Insert figure 2.a about here)
(Insert figure 2.b about here)

Based on the encouraging results obtained in the preliminary study, further studies were planned to explore the extent of use of evaluative data, especially the PALT data, and examine the relationships between data use and instructional planning and decision making.

A major planning phase was conducted in June and July 1986 to develop the schedules, refine the study questions, establish samples and develop the interview protocols and survey questionnaires. This phase resulted in a two year plan that incorporated survey research with a study of the Levels of Use of evaluative data, followed by a set of case studies.

Figure2.a Hypothetical Decision Structure

Planning horizon	Student	Instr Gp	Class	Grade	School	Cluster	District
SHORT TERM (Immediate thru grading period)	teacher	teacher	teacher	teacher principal	principal	D.O.I.	Supt. Deputy Dept.Head
MID TERM (Thru end of year)	teacher	teacher	teacher principal	teacher principal	teacher principal counselor	D.O.I.	Board Supt. Cabinet
LONG TERM (Next year and beyond)	teacher				principal vice prin counselor	D.O.I. principal	Board Supt. Cabinet

Figure 2.b Taxonomy of Decision Types and Examples of Relevant Data

Decisions	Relevant data
Short Term:	
a. Diagnose individual strengths and weaknesses	. Standardized, NRT, individual percentile
b. Who needs remedial help	. Stand. NRT, indiv. scale scores
c. What to teach (in class)	. Stand. NRT, individual standard scores(P)
d. What to reteach	. IRT scale score, individual (e.g. Rasch = RIT)
e. What to emphasize	. Stand. NRT, indiv. sub-scale score
f. What to skip	. CRT, individual mastery score
g. How to teach	. Stand. NRT, group percentile
h. How to assign grades	. Stand. NRT, mean scale scores
i. Evaluate instructional programs	. Stand. NRT, mean standard score(P)
j. Report to parents	. IRT scale score, group mean (RIT)
k. Student placement (grouping)	. IRT scale score by goal, group mean (RIT)
l. Diagnose group strengths and weaknesses	. Standard score by goal-group mean(P)
	. Standardized deviation score-group(DEV)
Mid Term:	. Standardized growth(Grow)
a. Student selection (program)	. Standardized residual(R)
b. Student referral (special ed.)	. Attendance (frequency count)
c. Where to allocate resources	. Behavioral observation
d. Student suspension/expulsion	. Student attitude survey
e. Who receives a standard diploma	. Teacher made test of skills or knowledge
f. Who receives a modified diploma	. Student enrollment data
g. Who to advance/promote/retain	. Student grades by class
	. Grade point average (individual)
Long Term:	. Grade point average (class or grade group)
a. What courses to offer	. Graduation standard status
b. How many sections of a course to offer	. Grade point average (class or grade group)
c. How many teachers to hire	. Graduation standard status
d. What text series to adopt	
e. How to assign teachers to courses	
f. How to balance the curriculum	
g. What new programs to implement	
h. What old programs to retain or discontinue	
i. How to reduce dropouts	

Study two

In 1986-87 the following two part Evaluation Use Study was conducted.

1.) Fall, 1986 - a telephone and mail-out survey study of how parents, principals and teachers use Research, Evaluation and Testing Department reports and services.

2.) Fall and winter, 1986-87 - a study employing the Level of Use model (Hall and Loucks,1977; Pechman and King, 1986), to ascertain the existing level of use of evaluative data in the schools. Schools were arrayed in terms of the levels of evaluation use revealed by the LoU model. Correlational analyses were conducted to examine the relationship between LoU and school achievement.

Fall Survey, 1986

In October 1986, 273 parents were surveyed on their use of student achievement test results. Surveys were distributed at the fall Parent-Teacher Conferences. Results indicated that the parents were pleased with the test score information they were receiving, but would like a report of their child's spring test scores and graphic, as well as numerical display of the test scores. This resulted in a redesign of the parent-teacher report.

In November 1986, survey questionnaires were sent to a random sample of forty elementary schools. The survey of principals and teachers requested information about the use and usefulness of the current Portland Achievement Levels Test (PALT) reporting system. Surveys were completed by 274 principals (N=35) and teachers (N=239) on their use of evaluative data.

Levels of Use

Interviews were conducted at forty-six elementary schools during the fall of 1986 by trained and certified LoU interviewers. One hundred twenty-six LoU interviews were conducted with teachers, principals and Directors of Instruction (DOI) in the district. Thirty-six principals and eighty-two teachers, and eight D.O.I.s participated in the study.

We found that 32% of principals and teachers use evaluation reports in a nominal manner (mechanical use) and 40% use the reports in a stable, comfortable manner (routine use). Thirteen percent of the evaluation report users vary their use of reports to increase the impact on their students (refinement). Eight percent combine their evaluation use with colleagues to achieve a

more collective impact on students (integration). Seven percent of the sample were found to be at nonuse, orientation, or preparation levels for using PALT evaluation reports. These results were reported in-depth at AERA in 1988 (Mitchell and Hansen.) Recommendations derived from the LOU interviews were used to make improvements in the PALT reporting system.

The LoU interview transcripts provided a rich source of data for further review and analysis as the case study data were interpreted.

CASE STUDY

Purpose of the Case Study

A multi-site case study was planned for the Fall and Winter of the 1987-88 school year. The purpose of the case study was to provide a comprehensive description of data use in the schools studied, to provide validation data for the survey and Levels of Use studies and to test and extend the hypothetical framework and taxonomy. Thus we had four objectives for the case study:

1.) To obtain an in-depth understanding of the instructional decision making process at the classroom and school level.

2.) To develop a comprehensive description of the planning and decision making process including the kinds of data used and how they are used in this process.

3.) To validate the Levels of Use findings.

4.) To test the validity of and expand upon the hypothetical framework and taxonomy.

As originally planned, the case study would focus on two low and two high Levels of Use schools from the LoU study. One low and one high LoU school would be a k - 5 elementary and one each would be a grade 6 - 8 middle school. Unfortunately, we had difficulty obtaining the cooperation of the principals and teachers in the low use schools. Thus we were left with one elementary and one middle school, both of which were low achievement and high data use schools. Staff scheduling problems and resource factors led us to focus most of our efforts on the elementary school. The study was further hampered by the author's departure from Portland in July of 1988 to take his current position with the Colorado Springs School District 11.

Case Study Plan

Research Protocol

We developed a research protocol to structure the case study and bound the data collection. The protocol included research questions, methods, instruments, procedures for data collection and analysis, timeline and relevant background information(Yin, 1986; Miles and Huberman, 1985.) The study was based on the following guidelines.

1. Research questions should be stated narrowly enough to provide clear guidance, but be broad enough to not be trivial or result in too restrictive a view of the phenomenon under study.

2. Methods should be primarily qualitative, varied and redundant enough to provide for internal validity.

3. Instrumentation should be adequate to provide necessary structure and focus, but not so much as to restrict the investigation from it's primary purpose, which is discovery (Miles and Huberman, p.42)

4. Procedures are needed for data analysis during data collection as well as after the data have been collected.

The case study included three basic types of data collection activities: interviews, survey questionnaires and observations both within classrooms and at meetings and other events. Where appropriate and useful, documents and forms used by teachers and principals for data collection, reporting and interpretation were also collected. The data collection methods were intended to help us develop answers to the specific research questions shown below.

Research Questions	Data Collection Methods
1. How is evaluative data used for instructional planning and decision making in schools?	
a. How is data used currently by principals, teachers and others?	a. Principal and teacher survey, interviews, classroom observation, staff meetings, documents.
b. What decisions do they make using data, routinely?	b. Validation and revision of hypothetical decision framework through interaction

	with decision makers.
c. How can the information be used for future planning?	c. Observation, interview and planning and staff meetings.
2. How can measurement and evaluation most effectively serve the decision making needs of parents, teachers, principals, and central office staff?	
a. Who makes what decisions and in what timeframe?	a. Validation and revision of the hypothetical decision framework through interaction with decision makers.
b. What kinds of data do they use?	b. Observation, interviews and survey.

The case study examined uses of evaluative data in instructional planning and decision making in a variety of circumstances. Data were analyzed for both pooled and between school effects. As case study notes were compiled, interpreted and analyzed the transcripts from the LoU study were also re-examined to see what additional data could be derived from them that would assist in understanding the relationships between decision making and data use.

The Two Schools

One elementary school (K-5) and one middle school (6-8) were selected to participate in the case study. Both schools had been identified as high data use schools by the LoU study the previous year. The elementary school received an overall LoU rating of IVB, indicating that it was in the "refinement" stage of use of the PALT data. The middle school was identified as being in the "integration" stage of PALT use. The Levels of Use manual defines these two stages, respectively, in the following manner.

> Level IVB - Refinement: State in which the user varies the use of the innovation to increase the impact on clients within immediate sphere of influence. Variations are based on knowledge of both short-term and long-term consequences for clients.
>
> Level V - Integration: State in which the user is combining own efforts to use the innovation with

related activities of colleagues to achieve a collective impact on clients within their common sphere of influence.

(Loucks, Newlove and Hall, 1975)

The Elementary School

Located in a predominantly white, lower socioeconomic area of Portland, the selected elementary school, reported an enrollment of 439 in the fall of 1987. The building, constructed in 1953, contained 25 classrooms. It's principal, a white male Ph.D. in his mid-fifties, was transferred to the school in the fall of 1986. His staff consisted of 18 certificated teachers, four aides, one clerical/secretarial person and three other classified employees. The pupil-teacher ratio was 22.5:1 while the pupil-instructional staff ratio was 19.0:1. The stability index, the percentage of students enrolled during the opening days of school in the fall who are still enrolled in the same school in June, was .683. The average stability index for all Portland elementary schools in 1986-87 was .779. Special program participation levels were as follows - Chapter 1 reading(34%) and math(18.5%), federal lunch(75 %), low income allocation(51%), talented and gifted(2.5%) and special education(12.1%). The school did not have an ESL/bilingual program. Achievement levels in reading, language usage and math were somewhat below the district averages for all three grade levels.

The Middle School

The selected middle school was located in a racially mixed, lower socioeconomic area. Enrollment in this school was 610 in the fall of 1987, with a staff of 30 certificated teachers, one instructional aide, four other certificated staff, three secretarial, and five other classified staff for a total of 44. The white male principal, in his mid-forties had been principal at the school for four years. The building, originally constructed in 1925, was updated in 1981. The pupil teacher ratio was 20.4:1 while the pupil-instructional staff ratio was 21.8:1. The school's stability index was .765. Special programs participation at this school included Chapter 1 reading(22%) and math(22.1%), federal lunch (54%), low income allocation(34.6%), talented and gifted(7.4%), ESL/bilingual(4.4%), special education(6.1%) and alternative programs(2.3%) Achievement levels were slightly below the district average across all grades for reading and math and right at or slightly above average for language at all grades.

Case Study Survey

In April, 1988 survey questionnaires were administered to the principal and teachers in the two selected schools. Questionnaires were completed by both principals, by 22 teachers

in the middle school and by 17 teachers in the elementary school. The four page questionnaire contained both structured response and open ended questions on type and frequency of use of reports and data sources; questions on types of test scores used by types of decisions made; type of score groupings used; needs for other types of data and services and demographic data on the respondents, e.g. level of education, number of years experience, etc.

Survey Results: pooled data

Survey data were analyzed using SPSS Crosstabs to determine what categories of information were used for instructional decision making, which PALT reports were used and for what purposes and how test scores were used.

Preferred Data Sources

Table 1 shows the pooled results for both schools on the most frequently used sources of data for instructional planning when no specific purpose is stated. The results show a strong preference for classroom assessment strategies. Performance assessment ranks first, with oral questioning strategies, teacher-made tests and assignments falling in second, third and fourth places respectively. The PALT ranked eighth overall with 43 percent of the respondents indicating that they used it often or always. Opinions of other teachers ranked seventh, with 44 percent indicating they used it either often or always. These results extended and supported results of the earlier survey in which teacher-made tests ranked first among teachers as the most often used source of information. However in that earlier survey, performance assessment and oral questioning strategies were not included as response options.

(Insert Table 1 about here.)

Preferred Report Types

Survey respondents were asked to indicate the extent to which they used reports from two different categories: Achievement reports - those designed specifically for use by the classroom teacher, and Administrative reports - those designed for use by principals and central office administrators. The results for this question are shown in Table 2.

(Insert Table 2 about here.)

Among the Achievement reports, the Fall-Spring Match Report by grade, a report that includes both fall and spring scores for each individual student within a grade level, ranked first, with the Student Goal Report by Class ranking second. The Preliminary Principal's report, a rank ordering of students in terms of their

fall test scores was third and the Parent-Teacher Conference Report was fourth. Reports used the least were feeder reports, indicating the scores of incoming students, cumulative folder labels and test score cards. Each of these had 50 percent or more of the respondents indicating they were never or seldom used.

Table 1. Most Frequently Used Sources of Data (pooled, n = 39)

EVALUATIVE DATA SOURCES USED FOR INSTRUCTIONAL PLANNING (Rank Order)	Never/ Seldom	Some	Always/ Often
Performance Assessment		6.1	93.9
Oral Questioning Strategies	6.3	6.3	87.6
Teacher-Made Tests	8.6	17.1	74.2
Assignments	18.8	15.6	65.6
Textbook Tests	23.5	29.4	47.0
Other	54.4		45.5
Opinions of Other Teachers	14.7	41.2	44.1
PALT Tests	37.2	20.0	42.9
Group Assessment Strategies	15.2	48.5	36.4
Other Standardized Tests	37.1	28.6	34.3
Student Self Rating	45.1	25.8	29.1
Markham Math Diagnostic	74.2	3.2	22.6
Student Peer Rating	71.9	15.6	12.5
School Based Test Reporting	83.3	10.0	6.6
BRAG: Basal Reading Assessment	90.6	3.1	6.3
Computerized Adaptive Testing	96.6		3.4

Among the administrative reports, the Goal Progress Report by Grade was the most frequently used with 48 percent indicating they used it often or always. Of seven reports listed, this was the only one receiving less than 60 percent seldom or never responses. This pattern of use is consistent with the fact that these reports were designed primarily for use by administrators.

Table 2. Most Frequently Used Reports (pooled, n = 39)

PALT REPORTS USED FOR INSTRUCTIONAL PLANNING	Never/ Seldom	Some	Always/ Often
Achievement Reports (Rank Order)			
Fall-Spring Match Report by grade	25.0	25.0	50.0
Student Goal Report/Class Alpha	21.7	30.4	47.8
Preliminary Principals - Rank	35.0	30.0	35.0
Parent-Teacher Conference Report	44.4	22.2	33.3
Preliminary Principals - Alpha	34.7	34.8	30.4
Final Principals Report - Fall	40.0	30.0	30.0
Test Score Cards	50.0	20.0	30.0
Labels for Student Cum Folders	42.9	28.6	28.6
Middle School Alpha Feeder	76.9		23.1
Middle School Rank Feeder	60.0	20.0	20.0
Administrative Reports (Rank Order)			
Goal Progress Report by Grade	33.3	19.0	47.6
Achievement Profiles	61.1	11.1	27.8
Five Year Achievement Gains Rpt.	63.2	15.8	21.1
Five Year Growth Charts	62.6	18.8	18.8
Achievement Rpt. by Ethnic Group	81.3	6.3	12.5
Board Rpt. Achievement Goal #1	86.7	6.7	6.7
Board Rpt. Achievement Goal #2	86.7	6.7	6.7

Self Ratings as Data Users

Respondents were also asked to indicate on a five point rating scale of "never - seldom - some -often - always" how they rated themselves as a user of data in three situations: to plan instruction or make decisions, to develop classroom/ building academic goals/ and to share with students to improve achievement. The results for this question are shown in Table 3.

(Insert Table 3 about here.)

The responses to this question are approximately the same for each of the three data uses specified. Respondents tended to indicate moderate to heavy use of data more than light or moderate use, suggesting that they viewed themselves as frequent data users.

Test Report Format

Respondents were asked to check the two test score report formats they found most useful out of a list of seven. These results are shown in Table 4.

(Insert Table 4 about here.)

As is shown in Table 4, respondents had a strong preference for formats featuring individual student data (64 percent.) Instructional group formats were second with class and grade next. Only the principals found the school reports useful and no respondents checked either cluster or district reports.

When asked the question "do the PALT reports you receive meet all of your instructional decision making needs" approximately 57 percent indicated "no" and 43 percent "yes". It should be obvious that the PALT reporting system was not designed to meet all of a teachers decision making needs, thus 43 percent is a surprisingly large "yes" response to this question and raises some doubt regarding the interpretation of this particular item by the respondents.

Survey Results: by school

Separate analyses were conducted for each school to see if the results would follow the patterns expected for an elementary and middle school. These data are displayed in Tables 5 through 8.

Preferred Data Source

The most frequently used sources of data varied between the two schools. The elementary school teachers reported a heavier reliance on PALT, textbook tests and oral questioning strategies than the middle school teachers. The middle school staff relied more heavily on teacher-made tests, assignments, student self-rating and locally developed diagnostic materials than did the elementary staff. These data are shown in Table 5. These patterns are consistent with expectations for schools at these respective levels in Portland, given the types of data and materials that are made available at each level.

Table 3. Self Rating as Data User by Situation (pooled, n = 39)

Table 3. Self Rating as Data User by Situation (pooled, n = 39)

USES OF DATA FOR INSTRUCTIONAL PLANNING	Never/ Seldom	Some	Always/ Often
Planning or Making Decisions	14.3	28.6	57.1
Developing Class/Building Goals	17.6	26.5	55.8
Sharing Data with Students to Improve Achievement	14.3	31.4	54.3

Table 4. Most Useful Test Report Format (pooled, n= 39)

TEST REPORT FORMAT (Rank Order)	Preferred Format
Individual Student	63.9
Instructional Group	36.1
Class	27.8
Grade	22.2
School	2.8
Cluster	
District	

(Insert Table 5 about here.)

Preferred Report Type

Major differences were apparent in the types of reports used by the staff of the two schools. The elementary staff reported greater use of the three fall principal's reports, the fall-spring match and the cum folder labels than the middle school. The student goal report, test score cards and parent-teacher conference report were more frequently used by the middle school staff. In the administrative report package, the Goal Progress

Table 5. Most Frequently Used Data Source by School (Elementary n = 17, Secondary n = 22)

	ELEMENTARY SCHOOL			MIDDLE SCHOOL		
EVALUATIVE DATA USED FOR INSTRUCTIONAL PLANNING	Never/ Seldom	Some- times	Always/ Often	Never/ Seldom	Some- times	Always/ Often
PALT Tests	33.4	8.3	58.4	39.1	26.1	34.7
Other Standardized Tests	41.6	25.0	33.3	34.7	30.4	34.8
Teacher-Make Tests	16.7	33.3	50.0	4.3	8.7	87.0
Textbook Tests	27.3	9.1	63.6	21.7	39.1	39.1
Performance Assessment		9.1	91.0		4.5	95.4
Oral Questioning Strategies			100.0	8.7	8.7	82.6
Group Assessment Strategies	9.1	54.5	36.4	18.2	45.5	36.4
Opinions of Other Teachers	18.2	36.4	45.5	13.0	43.5	43.4
Assignments	20.0	30.0	50.0	18.1	9.1	72.7
Student Peer Rating	72.8	18.2	9.1	71.4	14.3	14.3
Student Self Rating	54.6	27.3	18.2	40.0	25.0	35.0
Markham Math Diagnostic	100.0			61.9	4.8	33.3
BRAG: Basal Reading Assessment	90.9	9.1		90.5		9.5
Computerized Adaptive Testing	100.0			94.7		5.3
School Based Test Reporting	100.0			75.0	15.0	10.0
Other	50.0		50.0	57.1		42.9

18

Table 6. Most Frequently Used Reports by School (Elementary n = 17, Secondary n= 22)

	ELEMENTARY SCHOOL			MIDDLE SCHOOL		
PALT ACHIEVEMENT REPORTS USED FOR INSTRUCTIONAL PLANNING	Never/ Seldom	Some-times	Always/ Often	Never/ Seldom	Some-times	Always/ Often
Student Goal Report/Class Alpha	40.0	10.0	50.0	7.7	46.2	46.1
Test Score Cards	66.6	11.1	22.2	36.4	27.3	36.4
Parent-Teacher Conference Report	55.5	11.1	33.3	38.9	27.8	33.3
Preliminary Principals-Alpha	30.0	30.0	40.0	38.5	38.5	23.1
Preliminary Principals-Rank	50.0		50.0	25.0	50.0	25.0
Final Principals Report-Fall	37.5	12.5	50.0	41.6	41.7	16.6
Fall-Spring Match Report by Grade	25.0	12.5	62.5	25.1	31.3	43.8
Labels for Student Cum Folders	14.3	42.9	42.8	57.1	21.4	21.4
Middle School Alpha Feeder	100.0			70.0		30.0
Middle School Rank Feeder	100.0			50.0	25.0	25.0
PALT ADMINISTRATIVE REPORTS USED FOR INSTRUCTIONAL PLANNING	Never/ Seldom	Some-times	Always/ Often	Never/ Seldom	Some-times	Always/ Often
Goal Progress Report by Grade	22.2	22.2	55.5	16.7	16.7	41.7
Five Year Achievement Gains Rpt.	50.0	12.5	37.5	72.7	18.2	9.1
Board Rpt. Achievement Goal #1	80.0	20.0		90.0		10.0
Board Rpt. Achievement Goal #2	80.0	20.0		90.0		10.0
Achievement Rpt. by Ethnic Group	83.3	16.7		80.0		20.0
Five Year Growth Charts	50.0	16.7	33.3	70.0	20.0	10.0
Achievement Profiles	57.1	14.3	28.6	63.7	9.1	27.3

Report by Grade and the Five Year Achievement Gains report were more frequently used by the elementary than by the middle school teachers. These data are shown in Table 6.

(Insert Table 6 about here.)

Self Rating as Data Users

There were distinct differences between the two schools on their self ratings as data users in three different situations, with the elementary staff indicating a much higher frequency of dependency on data than the middle school. These results are displayed in Table 7.

(Insert Table 7 about here.)

Interviews and Observations

Structured interviews were conducted with the principal, test coordinator and four teachers each in each of the two schools. Teachers were selected to establish a balance by sex and ethnicity and to represent all grades. Thus for each school, at least one minority teacher was included among the two male and two female teachers interviewed. The semi-structured interviews were conducted in the late fall and early winter of 1987-88 in the elementary school and in the early spring of 1988 in the middle school. In each case, the principal was the first to be interviewed. Initial interviews lasted approximately one hour with the principal and were somewhat shorter for teachers. Followup interviews were conducted with some participants to gain additional information about questions and issues as a need arose.

In addition to these interviews the teachers from each group agreed to be observed for up to four days each, over the course of the year. At the elementary school a total of five hours of observations were conducted with each of two teachers and approximately eight hours were spent observing another. Observation time at the middle school was somewhat more limited, due to time constraints imposed by beginning the observations later in the school year.

The final data collection strategy consisted of attending staff meetings at each of the schools. Five staff meetings were observed at each site.

One other data problem seriously hampered the interpretation of the data. As mentioned above, the author left Portland to take a position with the Colorado Springs Public Schools on August 1, 1989. Some of the field notes from the middle school

Table 7. Self Rating as Data User by Situation for Each School
(Elementary n = 17, Secondary n = 22)

	ELEMENTARY SCHOOL			MIDDLE SCHOOL		
USED OF DATA FOR INSTRUCTIONAL PLANNING	Never/ Seldom	Some- times	Always/ Often	Never/ Seldom	Some- times	Always/ Often
Data to Plan or Make Decisions		18.2	81.8	20.9	33.3	45.9
Data to Develop Class/Bldg Goals		18.2	81.8	26.1	30.4	43.5
Share Data w/Students to Improve Achvmnt	9.1	27.3	63.6	16.7	33.3	50.0

were misplaced in the transition and have not been recovered. Therefore the results for the middle school reported in this paper are based in part on memory. Actual middle school observation and interview data available for analysis and interpretation in this paper includes data from: principal interviews, two staff interviews, two staff meetings, one sixth grade team meeting, and one teacher interview.

Interview and Observation Results

The case study results are discussed below in two ways: 1) in terms of the role of the data user and 2.) in terms of the hypothetical decision framework in which short, medium and long term planning horizons provide the basis for data use. Since the focus of the case study was on the school building, the roles of the principal, test coordinator and teachers were examined for their use of data.

Principal's Role

Both principals in this study had been identified through the LoU study as relatively high level users of the PALT data. Little was known about their use of other types of data however. The initial case study interviews therefore explored their knowledge and use of other types of data as well as the PALT data and pursued specific uses with them. Both principals proved to be quite dependent on the data provided by the PALT reporting system, but exhibited noteworthy differences in their data uses based on their own background, the level of their school and the availability of enhancements to the PALT system. Both used achievement test data to develop a broad view of their school's strengths and weaknesses and to help their teachers to target instruction on goal areas where the school was not as strong as it could be. Both principals set time aside in staff meetings several times a year to discuss achievement results and ways that they might be used to improve student performance. They also both demonstrated detailed knowledge of the testing program, reporting system and the appropriate uses of the various metrics and reports produced. They conducted inservice for their teachers on specific ways to interpret and use achievement data appropriately in planning for instruction.

The principals differed in terms of the specific uses they made of data and in the level of detail they pursued in analyzing and applying data within their schools. The elementary principal, a Ph.D. with 19 years experience as a principal, had just begun his tenure in his school in 1986, when the LoU study was conducted.

The Elementary Principal

Three basic levels of data were identified by the elementary principal - 1.) school level, 2.) textbook level and 3.) classroom level. At the school level, he correctly identified in one interview, PALT data as found in the administrative reports as being most applicable. He had also referred, in the LoU interview, to the use of the achievement profile to compare his school to others in terms of neighborhood characteristics, stability and other factors. Textbook tests were given their own level, as if they were unique sources of data. At the classroom level he identified teacher-made tests as the prime example.

School level use. The elementary principal began applying data to the management of the school immediately upon his arrival by using the achievement profiles and administrative reports to gain a historical perspective on the school and to establish a baseline against which he could set goals for improvement. An example of this broad, school level perspective is found in the following excerpt.

> ...I use the administrative reports and graphs to show generally whether the school is making any progress. Or if I see some indication that we're stagnant in some area, or if I see some repeated stagnation in some particular grade level, I try to see whether or not there was a substitute teacher that was there for the rest of that year or whether or not there was a new program brought in that year. For instance, in this school...they added a continuous progress program. I checked back two or three years to see whether in fact, when they added the new continuous progress program, ...the program didn't show any growth. It might have shown a reversal. In fact, that's what I'm seeing...that as a school, it may have reversed itself in terms of overall achievement.

The elementary principal also used the achievement profile data in his day to day counseling with parents regarding the school and its relationship to other schools with similar neighborhood characteristics. This counseling was also supported by the use of individual student test scores and performance histories, to help set expectation levels and solicit parental assistance.

Another example of this school level focus, so appropriate for a principal, is found in what the principal referred to as identifying "patterns of default" in the goal achievement of the school. The principal described using building reports to emphasize to kindergarten, first and second grade teachers, grades at which tests are not routinely given, goal areas that

were displaying patterns of weakness at later grades. His observation was that very slight weaknesses observed at lower grades would tend to increase over time, manifesting themselves in significant deficiencies as students progressed to higher grades. To identify such weaknesses he would break the test results down by goal and sub-goal at each grade level and track backwards, any deficiency he found at a higher grade. By presenting such disaggregated data to primary grade teachers he felt that he could motivate them to focus more instruction on the weak areas.

This principal tended to focus more on formal examples of measurement such as the PALT and other standardized testing as the most used source of data, than on informal assessments. Perhaps this is what he thought we wanted to know about, or perhaps it simply reflected his own orientation as a principal with many years of experience in the system. He displayed a good grasp of the value of achievement data in focusing and targeting instruction.

> I've capitalized on the strengths I've seen, emphasizing to the teachers that they spend the time and effort to identify specific teachings and the goals areas where there's some shortcomings, and then spend some additional time -- not just time in reading and math, teaching in those areas.

Teacher motivation. Teacher motivation was a major emphasis for the elementary principal. He used data in a variety of ways to stimulate interest and motivate teachers to improve student performance. Most of his efforts seemed to be well received by the teachers. There were exceptions, however. For example he spoke of the time he brought in a consultant from the Evaluation Department to explain the PALT system and the use of test scores in the classroom. By his own admission, many of his teachers resented the presentation, indicating that they already knew the system and its uses. In numerous informal asides with the researcher, this principal made it known that he felt that he needed to use the data to motivate teachers to do a better job, because his school's test scores were lower than he thought they should be.

Specific examples of how the elementary principal used data in his efforts to motivate teachers are 1.) presentations on the achievement profiles in staff meetings, 2.) sharing classroom level data, such as a goal achievement by class report with an individual teacher to help identify areas that need greater emphasis, 3.) focused discussions in staff meetings including staff meetings totally dedicated to reviewing data and making at least tentative decisions about areas to improve.

> I like to look at reports. ... I have had no problems in motivating teachers to; after I explain to them how

to use them and what effect they can have I have no problem. I have teachers jump on the bandwagon and say, "That sounds great. Let's go."

The principal's emphasis on teacher motivation was also manifest in the numerous testing and achievement topics included in staff meeting agendas. One February staff meeting included an "informal chat about testing." This item turned out to be a carefully orchestrated one and one-half hour seminar on testing and assessment that included presentations by selected staff on test-taking skills, the use of assessment in teaching, the use of the Parent-Teacher Guide to the testing system, practice items and goals for the language usage test, the use of the Scantron for scoring classroom tests in order to give the students realistic testing practice and the use of performance assessment techniques in whole language instruction. The meeting agenda could have served as a syllabus for an introductory graduate course on applied testing and measurement. The level of participation in the discussion was high and teachers were enthusiastic. The distinction between teaching to the test and teaching the curriculum on which the test was based was made clear. By initiating this session and having the teachers themselves make the presentations, the principal was developing teacher commitment to using the testing system in a constructive way. He was focusing them on preparing the students to do their best on the tests to be given two months later and preparing the teachers to think positively about the value of the data they would be generating.

Individual student data. This principal made good use of achievement data to track individual student progress, to diagnose areas needing remediation and to group students for instruction. For example, he described his use of achievement reports in the following excerpt.

> We're using them to review how a particular kid stands on progress, especially if he is identified for building screening committee or other problems of concern. We refer to that (data) for a base point for analysis of a problem.

In the classroom context, he advocated appropriate use of test scores for individual students.

> We use the RIT[1] scores and the P scores related to the individual results that we have for kids. Some of those results come in class sheets, class forms, and we have individual reports that we get for each kid. But when we're looking at teaching goals in a classroom, they would look, more precisely, to the goal reports, individual goal reports that kids have.

Resource allocation decisions. Within the school, the elementary principal saw some value in using administrative report data to base resource allocation decisions on. Referring again to patterns in the data, he said he would analyze the results to see whether or not he needed to put in some additional "boosters" in the form of people who are resources to a program. Such a booster might come in the form of assigning a teacher to work in a helping role as a consultant to another in order to achieve a greater impact from a program.

Summary of the Elementary Principal's Use of Data

The elementary principal proved to be a sophisticated data user. Case study interviews and staff meeting observations validated the earlier LoU data that identified him as a high level PALT data user. He did not demonstrate as high a level of familiarity with the use of non-test data however. His major uses of data are summarized as follows:

- motivation of teachers
- identify school wide areas of weakness to target for improvement - small problems at beginning grades get larger as they progress to higher grade levels
- track individual student progress - by goal area, communicate with parents about individual students
- checking placement decisions after they were made
- resource allocation

In terms of the hypothetical decision model, this principal used data for decisions on all three time horizons. Examples of his short-term uses include talking with parents about their students, student referral, grouping for instruction and regrouping based on test scores, motivating teachers and training teachers in data use and test taking skills.

This principal's mid-term uses included what areas of the curriculum to emphasize, reallocation of teacher resources and grouping for instruction, within the continuous progress program.

The long term uses were one of this principal's strengths. He reviewed historical achievement data on the school to see if there were areas that had suffered from neglect and used the information to refocus the instructional emphasis. He used data disaggregated by goal area and grade level to backtrack across grade levels in an attempt to identify persistent problems and direct teacher attention toward them.

Overall, this principal's uses of data were consistent with his role as instructional leader in the school. He maintained a focus on the big picture, emphasized instruction in areas where he detected weaknesses and used the data as a navigational tool to help guide the course of the school. He also used data as a

23

means of motivating teachers by identifying instructional areas in need of improvement and demonstrating for them ways they might increase student performance in those areas. As a result of the principal's emphasis on data use, teachers were much more conscious of the potential value of data of all types and the ways in which data could be used to improve instruction.

The Middle School Principal

The principal of the middle school had been identified in the LoU study as a level V (Integration) user of test results. He had a reputation in the district as a data oriented, innovative principal who took advantage of the technological innovations available to him. For example his school was one fourteen pilot schools trying out the school based test reporting system (SBTR), which he had helped to design. Through this system, each school could download a school file from the mainframe computer in the administration building to their local site using an MS/DOS PC as a terminal. The downloaded file could be manipulated on site to create customized reports for specific classes, grades or other configurations. This principal was also the chairman of the SBTR user's group. He had also volunteered to be one of the first schools in the district to pilot the Computerized Adaptive Testing (CAT) system. The CAT system provides on line, short, curriculum based tests that yield very precise estimates of a student's knowledge of the basic skill area tested.

In his initial interview in November of 1985, the middle school principal discussed his use of test information in terms of three time periods: (a) program assessment and forecasting - spring, (b) intake and planning - fall and (c) instructional monitoring - school year. These time periods correspond well to the short, mid and long-term planning horizons of the hypothetical decision framework.

He described the decision making process and the uses of data from various sources for each time period.

Spring - program assessment and forecasting. Each spring this principal would review test data from the PALT for two major purposes, program assessment and forecasting. In program assessment he would make use of the RIT score means presented in the Grade-Goal Progress Report to assess the overall strength of his instructional program by grade level.[2] He also made use of standard score data on the fall-spring match report to determine how many sections of pre-algebra and algebra he would need to plan for in the fall, how many Chapter 1 classes he would have and so forth. He also made use of locally developed, optional, diagnostic and prognostic measures such as the Portland Prognostic Math test and the Markham Diagnostic Math test. During the summer months he would use all the data to plan

changes in instructional emphases for the next year. When the teachers returned in the late summer, he would inservice them using the spring test data and they would develop their plans for the year.

Fall - intake, placement and instructional planning. In the fall, the middle school principal focused on longer range instructional planning with his teachers. Incoming students with test scores would be placed according to categories (low, average or high) established by their scores. Supplementary assessment materials would be used in combination with the district tests to create a composite picture of a student's performance level. Teachers would then use the data to create appropriate instructional groupings. Two years later, in a subsequent interview, the middle school principal indicated that he had moved away from homogeneous grouping based on research findings and was then grouping students in two broad groups, low to average and average to high, in terms of test data results.

Specific placement decisions such as Chapter 1 were based on standard score cutoff points (P = 43).[3] In cases where a student was placed using a marginal score (P = 42), he would review other sources of data such as classroom performance and grades to determine whether placement was appropriate.

School year instructional monitoring and short term planning. During the course of the year the middle school principal encouraged teachers to make use of classroom diagnostic tools and the CAT program to monitor student performance and guide their instructional processes.

Because of his involvement with the SBTR system, this principal made strong use of the system's ability to retrieve a four point in time test history for a student and to summarize goal and class data by those four points in time. He valued the RIT score as a growth measure and clearly understood its limitations in other situations.

Other data used. The middle school principal used a variety of data sources for decision making but relied primarily on the PALT data for building level decisions. He did not personally review the results of the diagnostic math tests but encouraged his teachers to use it. He worked with an instructional materials and software vendor to cross reference the locally developed Basal Reading Achievement Goals (BRAG) system to the company's materials so that objectives from BRAG could be addressed by the commercial materials. BRAG tests were thus used to obtain prescriptions for remediation.

He routinely reviewed behavioral data on student disciplinary and detention referrals from an Apple microcomputer database provided by the central administration. Periodically,

he would review the attendance data, checking for overall patterns. He would also review the eighth grade credit by exam results to check student status placement decisions. For individual conferences with parents he would print out student data from SBTR to obtain data from four points in time, showing the student's performance over a two year period. This would reveal to a parent whether or not the student was progressing at a normal rate.

Self perception as a data user. The middle school principal revealed great confidence in himself as a data user and held a realistic view of his strengths and weaknesses.

> I know statistical information very well. I have a thorough understanding of PALT. I have some weaknesses in terms of special ed. evaluation criteria and I need familiarity with special ed. diagnostic and placement instruments. I do well in helping teachers determine the strengths and weaknesses of students.

He also characterized his teachers as knowledgeable data users.

Factors associated with successful data use. This principal felt that the degree of trust between the principal and staff was a critical factor in data use by teachers.

> They need to understand that you want to help them to help their kids and improve instruction.

He felt that teacher defensiveness about data needed to be overcome and that it was the principal's role to see that this happened.

> It's important for a teacher not to be defensive about data. Growth is easy to explain to parents, but explaining regression is difficult. Teachers need help here so they can be secure in explaining why scores may have declined.

On use of the testing system he had this to say.

> Teachers need a better understanding of the system and what it is. They need to know what is in the blue book (Parent-Teacher Handbook) and what sub-goals are. They need to know what the levels in the PALT mean and who they are for.

This concern for helping teachers to understand the testing system, its uses and the properties and use of the various scores it produces was evident in his presentation of data from the system in staff meetings. One of the staff meetings we observed

took place in November following the release of the fall test results. In this meeting the principal presented the downloaded data on math and language usage from SBTR to his staff.

This presentation was a thorough and detailed explanation of the purpose, philosophy, features and characteristics of the PALT and explicit instruction on how to use certain reports. The principal presented each teacher with a class-goal summary for their class, then made a presentation using overhead transparencies. He carefully explained what the report contained, noting that their were a number of new teachers in the school who might not have seen such a report before.

Key points for teachers. The principal made three key points in his presentation. He explained: (a) the types of test scores used, (b) how to use the report, and (c) the overall value of the reporting system.

The data he used were from the fall administration of the PALT but included three previous data points, providing a two year history of student achievement expressed in both RIT and P scores. Both student level and class summary statistics were included. He provided a simple, clear and concise explanation of the RIT score, a concept that for many is difficult to grasp. He had an excellent sense of just how much detail to provide to give the teachers a sense of what the score means in terms of the curriculum continuum and how it could best be used. He was equally expert in describing the P score and its uses.

By tracing an example of one student over time he illustrated for the teachers, the difference between "normal growth" (the same P score from year to year) and "greater than normal". He demonstrated how the report could be used to decide which goal areas to emphasize by examining the number of students in each range (Low, Average, High) on each goal. He focused the presentation on instructional decision making by posing two questions: (a) "what is it that we are measuring?" answering "progress on the goals of the district" and (b) "how is it measured?", which he answered by introducing the Parent-Teacher Handbook as the source of information on goals and sub-goals.

The principal summarized his presentation by pointing out the value of the system in: (a) lesson planning, (b) communicating with parents and (c) working with individual students. The presentation engendered a lively question and answer session that revealed a high level of interest on the part of teachers.

Summary of Middle School Principal's Use of Data

This middle school principal lived up to his reputation as a data based decision maker, technological innovator and instructional leader. His level of sophistication regarding the use of formal testing data was superior to that of the elementary principal. However, he was also more dependent on the PALT data than his elementary counterpart. He made less use, at building level, of other types of data available to him, although he made such data available to his teachers and encouraged their use of it.

The middle school principal provided more structured inservice and work group decision sessions using data than did the elementary principal, reflecting both a difference in their styles and a difference in the type and quality of data available to each. Through the SBTR system, the middle school principal was able to obtain a variety of reports, including historical data, not available to the elementary principal, thus it would be expected that the middle school would be more dependent on such data. Moreover, testing does not begin for the regular students in the system until the third grade, therefore it would not be possible to have comparable historical data on elementary students until they reached the fifth grade.

The Hypothetical Decision Framework

Short term decisions. In terms of the hypothetical decision making framework, the middle school principal's use of data very closely conformed to the model. He made, or encouraged short term decisions, based on the use of classroom data and SBTR data. He used multiple points in time on sub-goals to work with parents to elicit their support in working with their children on specific weaknesses. His use of the BRAG system, cross referencing to a commercial instructional system, served as a perfect example of short term planning and decision making based on evaluative data.

Mid-term decisions. The middle school principal demonstrated the application of data in mid-term decision making through his use of PALT data to make placement and forecasting decisions about students and to change those decisions based n further reviews of data.

Long term decisions. These included deciding on the number of sections of algebra to conduct the following year and how many Chapter 1 classes to plan for and so forth. For these, the middle school principal relied heavily on spring PALT data, broken out by goal area.

Teachers Uses of Data

Interviews and observations were conducted with five teachers from each of the two schools. In each school one of the teachers interviewed was the testing coordinator (TC). The initial interviews were loosely structured and focused on types of decisions the teacher routinely made and the sources and types of data used in those decisions. A subsequent interview contained four types of questions: context, input, process and product. Context questions dealt with the types of decisions made, the teachers feeling about his or her own competence in using data, and the level of support received from the principal for data use. Input questions focused on how achievement data were used in decision making and the extent to which new decisions were being made based on data. For the middle school additional questions were included on the use of SBTR and CAT. Process questions sought information on who participated in the decision making at various levels, extent and level of involvement of others in decision making, problems related to data use and steps taken to resolve them. Product questions looked at inservice, services from the Evaluation Department, support needs, training needs and suggestions for improving reports.

Elementary Teachers

Two male and two female elementary teachers were interviewed and observed. Teachers were selected to obtain a balance across grade levels and by sex. One male and one female were third grade teachers and one male and one female each taught fifth grade. Third grade is the first year that students are tested using the PALT.

In general the elementary teachers evidenced familiarity with a broad range of data and its uses. They were quite facile in their descriptions of the data they used and the decision making situations in which they used it. Very little prompting was needed to elicit detailed responses. The types of assessment data identified by them as being used rather routinely and the decisions supported by the data are shown in Table 8.

(Insert Table 8 about here.)

Types of assessment data used. The types of assessment data in Table 8 are arranged in roughly ascending order from least formal to most formal, with the exception of the enrollment data which is a separate class of data entirely.

It may be worth noting that none of the teachers identified, in the interview process, student self ratings or peer ratings as sources of data for decision making. Although in one case a teacher did mention having students exchange papers to check

their work. The distinction here is that the students were not rating one another's performance, but were assisting the teacher by checking papers. This practice also has obvious instructional benefits. None of these teachers used the phrase "performance

Table 8. Types of Assessment Data Used for Decision Making by Elementary Teachers.

Type of assessment data used	Uses
1. Teacher observation and judgement.	1. How to teach and what to teach.
2. Oral question and answer	2. Assess the students' understanding of materials, expressiveness, ability to reason and prove point.
3. Word games "Who am I?"	3. Assess student's knowledge of material (memory). Mostly group but some individual info.
4. Homework, e.g. Reading assignments, longer range reports	4. Assess knowledge and skill levels.
5. Weekly unit tests a. textbook tests MacMillan English Heath math test	5. Evaluating instruction a. - screening to obtain idea of skill level of group. - feedback to students on what they need to practice.
b. essay student writing exercise	b. subject knowledge and written expression
c. work samples, e.g.spelling words in sentence	c. provide feedback to students on what they need to study
6. PALT data	6. Assess strengths and weakness of instruction. a. goal analysis b. identify low achievers for Chapter 1 (fall). c. placement in curriculum d. evaluate growth
7. Enrollment data by class and program, e.g. Chapter 1.	7. Assign and schedule aides (C-1 coordinator).

assessment", even though they employed various forms of performance assessment, including both paper and pencil and observational techniques. In addition, only one of the four regular teachers indicated use of other teachers' opinions of students in making instructional decisions.

Summary of Elementary School Teachers' Uses of Data

The types of decisions routinely made by teachers, not surprisingly, tended to focus on the instructional needs of students individually and in groups. These are illustrated by the following examples from the interviews and observations. The examples of reports that teachers referred to in describing their uses of data emphasized those that contained individual student data, especially those that included goal analysis data such as the Class Alpha Goal Summary report, which provides goal data by individual student within class.

Test-taking skills. One of the elementary teachers interviewed was a school leader in the area of test-taking skills. She simulated the PALT testing process in her daily instructional routine as illustrated in the following excerpt.

> I do not teach the test, but I use the blue book to help me ask questions like they do on the PALT test, in the same format. I'll phrase questions like they phrase them on the test and teach kids the instructions and give them the practice tests.
>
> I'd like them to develop more practice tests in individual goal areas so I could students practice tests in just computation or just word meaning.

This same teacher conducted a mini-workshop on test-taking skills for the school staff as part of a staff inservice.

Test taking preparation was a part of the routine of this elementary school. At a staff meeting in mid-April, just before spring testing, the TC handed out practice tests, encouraging teachers to use two practice tests before the district wide testing was conducted. Teachers were also encouraged to read the practice test packet directions very carefully and to plan their testing time very carefully. Instructions were given on absentee testing and on how to review answer sheets to remove stray marks and check for validity.

That test-taking skills were imbedded in the curriculum was easy to observe in the classroom. Three of the observations witnessed instruction on or review of test-taking skills.

Team planning. Team planning of instruction was the norm for this elementary school. Unfortunately, scheduling problems prevented us from observing the team planning process, but the teachers described it for us and made frequent references to the process in our interactions with them. Teachers plan in grade level teams. Team planning begins in the fall before school begins and planning sessions are conducted periodically throughout the year. In the initial fall sessions, individual student scores are examined in terms of their level (very,low, low, average, high, very high) by goal in each of the three subject areas tested. Students with "L" or "VL" scores are reviewed more closely for specific goal weaknesses. Instructional groups are established so that these areas of weakness can be addressed.

End of year data use. Spring planning in the elementary school was aimed at making up class lists for the following fall. Teachers reviewed PALT reports in combination with other data collected over the course to assign students to classes. Data on level of performance (VH,H,AV,L,LL) was combined with teacher observations regarding the need for supervision, independence, special program participation such as Chapter 1, LD, TAG, etc. to establish balanced classes. Teachers work in their teams in a group process.

Within a class a teacher may review his/her average RIT gain and conduct a goal analysis to assess class and individual strengths and weaknesses. These goal analyses can be used for developing remediation efforts before the end of the year or for remediation of individual students in the fall. They can also be used to evaluate whether the average growth for the class is comparable to the school and the district, in much the same fashion as one would use norm-referenced data.

In using the goal analyses for remediation before year end, teachers typically combine these results with textbook tests and professional judgment to diagnose specific needs, in a two step process. The same analyses can result in the enhancement of instruction for higher achieving students.

Another device used by teachers at year's end was a summary sheet that compared individual student RIT gains in each basic skills subject against the grade level average for the district and indicated whether the student was above (+) or below (-) the average. The principal prepared the comparison sheets and handed them out at a staff meeting the week before spring testing. Teachers were expected to fill out the sheets from the reports they received back.

A chapter 1 needs assessment was also conducted in the spring to provide data for planning the fall program. The needs assessment, conducted by the TC, who also served as the Chapter 1

coordinator, conducted of two surveys. One survey form, disseminated to staff and parents, asked for a rating of the need (no need, some need, great need) for each skill in a list of skills and other ancillary areas. A second survey for teachers only, asked for a listing of needs in reading and mathematics.

Ability Grouping. Grouping by ability level for math was a commonly observed practice in this school. Lower level performance groups have alternate text materials and pull out groups were composed from across classes. This sometimes led to considerable disruption as students shuttled from room to room for special class sessions. Chapter 1 was conducted as a pullout program and pulling students out for other classes such as computer lab was common practice at fifth grade. Reading instruction was conducted on a continuous progress basis. Data on student performance by goal and sub-goal was therefore used in placing students in math groups and in monitoring their progress, but was not used in the same manner in reading.

Classroom assessment. Classroom observations revealed a reliance on worksheets and the use of oral questioning strategies to assess student performance. Worksheets were used heavily by one of the third grade and one of the fifth grade teachers. They were also discussed and shared widely in staff meetings. It appeared that management and control of students was a problem in this school and that worksheets provided a means of keeping students on task. They were also used as enrichment exercises when students finished their in-class assignments within the allotted time. Oral questioning strategies observed in the fifth grade were mostly recall. Less frequently, they required recall of detail and inferential responses from students, although they also included questions that required formulation of opinions. This class was observed during a period when an English unit focused on the distinctions between opinion and fact, truth and fiction was being taught. Observed in-class exercises in social studies also dealt with formulation of opinions, supported by fact.

Other classroom assessment strategies that were directly observed are listed below.

1. Group reading, picking words or phrases from context and questioning students about their meaning.

2. Demonstration followed by observation, with assistance provided as needed, then reteach based on observation. Example: Italic handwriting demonstrated on chalkboard, followed by the teacher observing while students attempt to replicate the word. Individual assistance is given and a decision is made to move to another concept or reteach.

3. Work sampling. Spelling lists, sampled for specific types of errors, such as capitalization, double consonants, etc.

4. Lists of books read, used as a means to check whether a student is progressing from less difficult to more difficult books.

5. Journals used as means of developing writing skills. Provides the teacher with a record of progress, shared with the student. Pages are kept, but not corrected. Bound and given to student at end of year. Teacher can see how student has progressed in spelling, sentence construction, etc.

6. Oral questions. The level of cognitive demand varied according to group ability level.

The most common in-class decision observed was to decide who to help and who to discipline. The data used consisted of observations of immediate behavior and responses to questions or the questions asked by the students themselves.

Summary of Middle School Teachers Uses of Data

As indicated earlier in the case study section, scheduling difficulties restricted us from obtaining the same level of in-depth data collection with the middle schools as we were able to obtain from the elementary level. We conducted interviews with five middle school teachers including the TC, observed one sixth grade team meeting and three staff meetings.

Types of data used. The middle school teachers used an even broader range of assessment data than the elementary teachers. In addition to the types of data listed above for the elementary teachers, these teachers made use of group assessment methods, opinions of other teachers, student self ratings and peer ratings. The pattern of use closely parallelled that of the middle school principal, with a somewhat greater emphasis on classroom assessment as would be expected. Specific data and examples of its uses are described below.

PALT data is used by the middle school teachers at the beginning of the year to review student performance histories for patterns and consistency. One teacher assigns students many writing tasks early in the year and uses the results to verify PALT performance and to identify inconsistencies that can provide information for instructional planning.

Performance assessment was used quite effectively by one teacher in the following example.

Eighth grade students were preparing to write a research paper. The teacher asked them: "What is knowledge? How do people get knowledge? Why do we need knowledge?" Students listed places, people and things that help them to acquire knowledge, then checked those they used most frequently and those that were most accurate. This exercise on how to get knowledge most accurately led them into the research paper. The teacher, by observing the process and responses during the discussion, obtained information on individual students and how they would approach the task.

Oral questioning strategies were also used very effectively by this teacher who was a TESA (Teacher expectations and Student Achievement) trainer. She was very knowledgeable about how to ask questions to tap higher level cognitive processes. She used different questioning strategies for different students and topics, but asked all students opinion level (evaluative) questions.

Assignments in this school tended to be those that could be done in class. Very little homework was required because of the mixed ability levels in a given class. Essay assignments were evaluated primarily on content rather than style, spelling or grammar. One teacher awarded A s to all assignments finished during the allotted class time.

Peer ratings were used in one case where the teacher read essays aloud in class and the students voted to determine which one was the best. This was done in conjunction with a writing class in which students had been given instruction on how to give a critical opinion of writing to peers.

<u>Types of decisions made.</u> The types and pattern of decision making by middle school teachers also followed the hypothetical model. PALT data were used somewhat less in the fall for assigning students an more for verifying or validating classroom assessments than was the case in the elementary school. Classes were planned in the spring, based on four point in time data. The Principal's Preliminary Goal Report from the fall testing provided data which, in combination with data from the BRAG, CRT and Portland Prognostic, could be used for re-assignment of students or for zeroing in on their specific learning needs.

Over the course of the year, short range decisions at classroom level were supported by classroom assessment, BRAG, CAT and CRT data.

SYNTHESIS AND INTERPRETATION

The Hypothetical Decision Framework

The hypothetical decision framework posited at the beginning of this three year investigation breaks instructional decision making and planning activities into three levels based on the time horizon associated with each: short-term, mid-term and long term. Decisions are then identified in terms of the decision maker and the level of the organization at which they are made: classroom, teacher/aide; grade, teacher/principal; school, principal; cluster, DOI; and district, central administration,etc. These studies focused on decision making and data uses at the building and classroom level to learn what decisions were made and what data were used in the process. The framework has proven to be a useful conceptual tool for viewing the decision-data use process. These findings added to the validity of the framework and helped us to expandand refine the taxonomy. Further studies are needed to refine the framework if it is to serve as the basis for a model of data based decision making in a school district setting.

The Principals

Previous survey results (Hansen, 1988) from the first study, revealed differences in the way principals and teachers used data that were consistent with their roles. The case study results were consistent with that earlier finding. This was especially evident in the survey data which showed clear differences in the types of metrics and reports preferred by principals and teachers. This finding was further supported by the interview and observational results which showed that the principals in this study, while varying in their involvement in the details of data interpretation, tended to focus on the whole school and to model good data usage for their teachers. They not only set the tone for data use in their school, as one elementary teacher noted, but provided specific examples of appropriate usage and introduced tools for teachers to use in applying data to their planning and decision making.

Both principals were more dependent on the results of more formal, standardized testing than were their teachers. This finding is consistent with the role expectations of teachers and principals and with their decision making horizons and focal areas as depicted in the hypothetical decision making framework.

Principal supportiveness for teachers was perceived as high by teachers in both the elementary and middle school. Teachers in both settings cited examples of how their principals used data

to make decisions and how they provided the teachers with useful analyses and summaries. The demonstrations of data use seemed to motivate teachers and elicit their respect not only for the principal but for the use of data as well.

Much has been written about the changing role of he principal in recent years, most of which has focused on the role of the principal as instructional leader. Fewer observations have been made on the role of the principal in the information age. The accessibility of high speed, high capacity computers may be exerting a new influence on the role of the principal as a leader in the use of information to help teachers improve instruction. Portland Public Schools is one of a relative handful of schools using the type of technology exemplified by SBTR and CAT. As these types of innovations become more commonly available, teachers will have access to virtually continuous streams of electronic feedback on their students. They will need leadership that understands how to make the best use of this technology for planning and making decisions to help students learn. It is worth noting that before the case study was completed the elementary principal notified the author that he was very interested in the SBTR and the CAT system and hoped that he could be one of the first elementary schools to be involved with these systems.

The Teachers

Teachers in this investigation were mostly skilled data users, just as they had identified themselves to be in the survey. Some differences were evident in the types of data available to the teachers at the two levels, and the uses tended to follow from those differences. The availability of SBTR and CAT to the middle school, naturally resulted in more reliance on PALT data. As suggested above the teachers at both schools tended to follow the lead of their principal when it came to data use.

In the survey data, teachers expressed a strong preference for classroom assessment data, consistent with the findings of Stiggins, et. al (1985). Interviews and observations, especially at the elementary level, revealed that practices in the classroom were consistent with the survey findings. Stiggins and others who have intensively studied the classroom assessment environment have found standardized tests to be among the least useful forms of measurement for instructional decisions. However, it should be clear that the PALT is not just another standardized test. It is specifically designed to measure the breadth and scope of the Portland curriculum and is not in any way dependent on a norming population for interpretation. The PALT has been identified by Haney (1985) as one of the most educationally useful measurement programs in a school district. The CAT system used in the Portland system uses items from the PALT and the scores it

produces are valid, low error estimates of performance on the PALT. This results in an instructionally sensitive feedback system that can provide individual teachers with a quick and accurate assessment of student mastery of curriculum objectives.

The survey and case study results were consistent regarding the types of reports used by teachers and confirmatory of their preference for data on individual students. Teachers' preference for reports was a function of the level of detail the report provided on individual students. Their most frequently used reports were those that provided data on individual student goal attainment. The more detailed and specific the analysis of data, the more useful the teachers perceived the report to be. This is not surprising in the least, but tends to confirm that good teachers focus on the needs of individual students more than on those of a group.

The findings regarding types of reports preferred by school level varied in ways that are difficult to explain. Elementary teachers reported greater use of fall data from the principals' reports and saw less value in the Parent-Teacher Conference report, and labels for cum-folders. They saw more value in the Goal Progress Report by Grade and Five Year Achievement Gains. Middle school teachers were less dependent on fall data and preferred the Student GOal Report and Principal's Alpha. These differences could be attributable, at least in part, to differences in the principals' preferences. Principal style, interest in data, facility with it's interpretation and use and leadership, certainly seemed to play a significant role in determining the patterns of use among teachers.

IMPRESSIONS/INTERPRETATIONS

A number of impressions and interpretations emerge from this study, that are not so much a product of the data as they are borne of the researchers' experience in conducting the study. They are listed below in no particular order of importance or relationship to one another.

1. There are principals and teachers who are effective data users, contrary to popular myths. These educators understand the value of the data available to them and make good use of it in their daily routines. We found more evidence of data use than we anticipated even among these high data use schools.

2. A key factor in whether a school is a high data use school or not is the principal's attitude toward and comfort level with data. The principal sets the tone and creates the ethos, for data use by the way he or she models the use of data in the planning and decision making process. We did not explore the issue of why these principals were high data users or how they developed into data users.

3. A big question remains as to whether the behaviors of the principals and teachers in we observed in these higher data use schools are observably different from those in lower data use schools. How different are they? In what ways do they differ? The answer to these questions would help us to understand how data users develop and how the central office support system might better address their needs. Further studies are needed that explore these questions.

4. High transiency affected, possibly in a restrictive fashion, the flexibility of teachers in the elementary school. One fifth grade teacher noted that he had a complete turnover in his lower level math group of fifteen students between September and February. The effects of this type of transiency on data use are not well known. One can speculate that the decision framework in such cases would be more restricted to the short-term range, placing a greater emphasis on classroom and criterion referenced forms of assessment.

The results of the Decision Making study are being used to design training modules and/or support materials for principals and teachers on effective use of evaluative data. The experience gained in conducting the study and the knowledge acquired about uses of data at the school level will also prove valuable in future studies.

We hope to continue to explore the utility of the decision framework posited for these studies in other settings. This may necessitate revising the taxonomy to more closely correspond to the types of data available in a specific district or school.

The application of appropriate, timely, high quality information to the instructional decision making suggests a circle that begins and ends with the student learning process. All too often this circle has been interrupted at the principal-teacher level due to inappropriate information or misapplication of appropriate evaluative data to the improvement of instruction. The promise of this research and development project is that it offers the research and evaluation community a means of assuring that quality data are appropriately applied in completing that circle.

References

Haney, W. (1985, October). Making testing more educational. Educational Leadership, pp. 4-15.

Hansen, J. (1988, April). The use of evaluative data for instructional planning and decision making: selected survey results. Symposium presentation at the annual meeting of the American Educational Research Association, New Orleans, LA.

Loucks, S., Newlove, B. and Hall, G. (1975). Measuring Levels of Use of the Innovation. Research and Development Center for Teacher Education, University of Texas, Austin, TX.

Miles, M and Huberman, A.(1985) Qualitative Data Analysis: a sourcebook of new methods, Beverly Hills, CA.

Mitchell, S. (1988) Levels of evaluation use and student achievement. Symposium presentation at the annual meeting of the American Educational Research Association, New Orleans, LA.

Pechman, E. and King, J.(1986). Analyzing the school evaluation process to make evaluation worth the effort. Paper presented at the annual meeting of the American Educational Research Association, San Francisco, CA.

Yin, R.(1986). Case Study Research: design and methods. Sage, Beverly Hills, CA.

1. RIT stands for Rasch unIT. A unit of measurement named for the Danish mathematician Georg Rasch, who developed the single parameter model of scaling test items, based on their log-item easiness. The RIT scale is a continuous, equal interval scale tied to the Portland curriculum. It has a range of approximately 150 to 260, spanning grades three through eight.

2. This report shows fall and spring data for each goal by grade level in terms of RIT means and their deviations from the district wide school mean for that goal and grade level as well as the growth mean and its deviation value. Deviations of .5 or more are considered meaningful.

3. P stands for Portland Standard Score, a standard score with a mean of 50 and a standard deviation of 10. It is developed separately for each grade and subject encompassed by the PALT, each time the tests are given.